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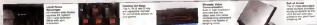
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 3. [Getting started](#)

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Abstract The purpose of this study was to determine the effect of a 12-week resistance training program on the muscle strength and endurance of the lower extremities in healthy young adults. The subjects were 15 male and 15 female college students, aged 18-25 years, who were randomly assigned to either a resistance training group or a control group. The resistance training group performed a 12-week program of resistance training, while the control group performed no exercise. The subjects were tested at baseline and at 12 weeks for muscle strength and endurance. The results showed that the resistance training group had significantly greater increases in muscle strength and endurance than the control group. The findings suggest that a 12-week resistance training program is effective in improving muscle strength and endurance in healthy young adults.

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12-2000-01-01-01-01
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Editorial

Inadvertently eco-friendly



CES is nothing if not a gadgeteer's paradise. The very name of the show proudly proclaims that it's an office is consumption, much like the fast city itself. But apart from adding variations to the sparkling products we see at the mall, is there any level of social good that comes from all this? You know, concepts like green products, reasonable consumption etc.

In Vegas, where consumption is celebrated 24/7, you'd expect these ideas to be as alien as a natural blizzard, but in fact I had out across the desert to the Hoover Dam and you'll see why some locals are paying attention. One of the Canadian journalists I hung out with at the show noted it and noted how low the water levels are. With digital products, the direct problem isn't water consumption, but power consumption.

This factor goes directly to the corporate bottom line because a cell phone or MP3 player or notebook computer that works for 20 hours on a charge is going to have more built appeal than one that lasts only three hours, other things being equal. What comes out of this are products that are more energy efficient. It may be an inadvertent consequence because manufacturers aren't necessarily thinking green, they just want to sell more products, and consumers may not be thinking green either, they just want better experiences.

This inadvertent greening has happened in a number of digital product sectors. Take displays, which are common to a wide range of consumer products – computer monitors, TVs, cell phone displays and portable media player screens. Replacing your old cathode ray tube PC monitor or TV set with a LCD based one could cut energy consumption by about half – while giving better picture quality. And many of the smaller household devices

wouldn't be nearly as usable were it not for OLED displays, which are even more energy efficient.

I was at a computer trading last fall, and during lunch one of the product engineers quipped that Intel Intel presented in a similar fashion with its processor development – i.e., ever more transistors and faster clock cycles – the chip would eventually be as hot as the surface of the sun. Joking aside, Intel's Core and Core 2 multicore chips achieve this by throttling back on the cycles, so the chips run much cooler, while still delivering performance. That means the associated support systems like fans, power supplies etc. can be smaller too. So now it's possible to have tidy, fanless, yet powerful computers without having to pay a premium for a notebook design or pay an extra note to the utility company.

As PCs become integrated into a home entertainment environment, such characteristics like quiet operation and appliance-like instant on and off will become as crucial as raw performance. And the road there often means greater measures of energy efficiency.

In 2005, the US department of energy commissioned a study to look at ways to improve energy efficiency in offices, and the study author (a firm called RAD) came up with a list of 80 emerging office equipment technologies that could reduce power consumption in offices by as much as 70 percent. Among these technologies are advanced display technologies like OLED and more effective sleep modes for PCs.

Whether it's through a direct motivation or not, digital is potentially greening. Is an ecological level, some would argue that it's consumption per se that's the root of the problem. But I would argue that choosing how we consume – whether it's energy-sipping light bulbs or low power processors – is better than doing nothing at all.

Enjoy the show.
David Daniels
Editor-in-Chief

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in selected regions and online

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HUB

DIGITAL LIVING

Volume 82 • Number 102

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Printed at the Publishing House, 100 West 10th

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The screenshot shows a portion of a mailing label for "King George Hwy". It includes fields for "Street Number" (containing "88400") and "Office Department" (containing "Super Store").

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[illegible][illegible][illegible]

Living with Linux

Exploring Multimedia

I worked out my sound card problem with Ubuntu Linux by swapping out the existing card and replacing it with Creative Labs' Audigy 2. Single instances sound as Linux detected a card it supported and poured forth system sounds. Now to listen to my MP3s - or so I thought. When I double-clicked on a Ben Webster Quintet tune, I received a message that the format was not supported.

Linux distributions such as Ubuntu try, as much as possible, to use only open-source, i.e., restricted formats that have no licensing or patent issues. A Linux junkie could convert all his or her MP3 files to the patent-free Ogg Vorbis format, but for many of us this is impractical. Fortunately, the Ubuntu Linux documentation provides clear instructions on how to install restricted support software.

Once the required support files are installed, Linux will play MP3, Ogg, commercial DVD, Quicktime, Realmedia files or view Flash and Java. For most of us, it's a no-brainer to go this route. After I added the easily installed support, I was able to listen to MP3s and watch commercial DVDs.

Audio Players

In Ubuntu Linux, the Totem Movie Player is the default multimedia application. Anyone using Windows Media Player will feel very comfortable with Totem. When you insert a music CD or movie DVD, Totem starts up automatically. It's a good general purpose player.

For my large collection of MP3 files, I prefer Rhythmbox to Internet Rhythmbox, an application that is a little more like iTunes. It will build an index of artists and albums on media, and it can be used to listen to Internet radio and subscribe to podcasts. You can also create and use custom playlists. It also offers generic support for portable MP3 players, but nothing iPod specific. Unfortunately for iTunes fans, iTunes itself is not available for Linux.

I don't yet have an iPod so I couldn't test them out, but there are three Linux applications that offer full iPod support, including synchronizing files. Amara, Renshes and Listen. There is also an application called gajot that can manage songs and playlists on an iPod. If I get an iPod for my next birthday, I'll report back on these apps.

DVD Players

Kee, surprisingly, Totem Movie Player is Ubuntu's default application for viewing DVDs. Designed with movies in mind, it provides the usual controls for stopping, starting, pausing and changing screen sizes and aspect ratios. What it doesn't provide yet is menu support, so you can only watch a commercial DVD straight through with no chapter titles. The forward/backward buttons do not respond when a DVD is playing.

Because I found Totem too limited for my DVD viewing tastes, I installed and tried Dgile, another DVD viewer, and it has some advantages. The default viewing size is larger, there are more controls available, and it can go to



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chapters. The downsides are that movies cannot be viewed, and the chapters are generally titled, e.g., Chapter 1, Chapter 2, Title 1, Title 2 and so on. On the plus side, however, it plays the entire DVD including the trailers at the front, and goes to the DVD menu where you can use a mouse to select what you want to watch. The forward/backward and other controls work as expected.

Given that most of my previous experience with Linux had been on the server side of things, I was amazed to find that Linux has progressed on the desktop. It may not provide all the features and polish of Windows and Mac multimedia applications, but what it offers is more than adequate and being

improved daily. It is a tribute to the dedicated open-source programmers worldwide that you can now use Linux comfortably as a solid, enjoyable and very modern workstation.

By Gene Williams

Gene Williams is a writer/photographer living in Port Credit, Ontario. He can be reached at gene@williams.ca. The *Living with Linux* blogpost is located at living-with-linux.blogspot.com.

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A third degree of freedom

How can you control photographic exposure? You have three ways – adjust the shutter speed, the aperture or the light sensitivity. With film photography, you have just two degrees of freedom within the camera settings: aperture and shutter speed. The third variable, sensitivity, is a characteristic of the film, not the camera. (The light sensitivity of film is rated as an ISO number, with higher numbers indicating more light sensitivity.) Once you've made your choice to use film of a given sensitivity – say ISO 100 – this variable is locked down until you change to a different film. There are workarounds, such as push processing, but the results aren't always satisfactory.

One of the characteristics distinguishing the digital image sensor from film is its variable sensitivity to light. Thus, with digital photography, sensitivity becomes a camera-controllable variable, alongside aperture and shutter speed. This means that when you shoot digital, you have a third degree of freedom to play with in deciding the best exposure.

This won't matter much to you if you always set your camera to Auto, but it might explain why none of your pictures are keepers since you started shooting digital. On Auto, the camera will pick the best combination of exposure variables to ensure the best possible picture. With a film camera, that means setting the best shutter speed and aperture combination. Often though, the limitation is the film speed – you have slow daylight film in the camera but you want to take some indoor shots, for example. Since the film camera has no way of slowing film speed, it does the best it can, but the results are often photos that are underexposed because the camera was pushed beyond the limits of its maximum aperture setting or blurred because the shutter speed it picked was set too slow for hand-held shots. The third degree of freedom available in a digital camera means that the camera can also boost ISO sensitivity, so a proper exposure can be calculated under more lighting conditions – dark or light.

If you are an advanced shooter, you probably know about the aperture-priority and shutter-priority settings on your camera, and when it's most appropriate to choose one or the other. If you want to control depth of field, aperture priority is the mode to use, since you dial in the aperture setting to match the depth of focus you want to achieve, and the camera calculates the proper shutter speed for a correct exposure. Likewise, if you are shooting for moving subjects, you'd pick shutter priority, which lets you choose a specific shutter speed – say 1/1000 sec – with the camera calculating the correct

aperture setting for a proper exposure. Both of these scenarios can be enhanced now that you can also vary the ISO setting – that by shot if needed.

Landscape photographers often want a photograph that's razor sharp from foreground grass to distant horizon, and thus choose very small aperture settings to maximize depth of field. Nature photographers using extreme telephoto lenses will choose small aperture settings for a similar reason – to maximize depth of field (which tends to be quite shallow at high telephoto settings). Because less light comes through the lens set to a small aperture, the shutter has to be open longer to make the proper exposure, and of course that creates camera steadiness problems. Using a tripod might be a solution for landscape photographers, but might not be so workable for nature photographers who have moving subjects like birds or moving animals. By setting the digital camera to a higher ISO, you can have your small aperture and a faster shutter speed.

With shutter-priority, the same benefits exist. Say you are shooting your daughter's volleyball game, and in order to stop the action, you need to use a fast shutter speed. If the gymnasium lighting isn't bright enough, you may have to use a wide open aperture, which means the focusing will be very shallow. Boost the ISO, and you can stop down the aperture, to keep more of the action in focus, and still use a fast shutter speed.

High ISO used to be synonymous with increased digital noise, and while that can still be an issue, camera makers have made great progress in either taming the noise or making it look less objectionable, more like the visible film grain of high ISO film stocks. It's a variable worth exploring.

By David Tanaka





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Working with lists in Excel

Helen Bradley describes how you can put the List tool in Excel 2003 to work in your business

When you need to create a simple list, consider Excel as an alternative to creating the list in Access. Excel 2003 includes a handy list tool that helps you not only build lists very easily, but also find information in them and check the data they contain.

The benefit of using Excel over Access is not only simplicity (Excel is easier to use) but also the list is always in front of you so you work - not hidden - tables behind the scenes. Additionally, in Excel you can create a chart based on your list and the chart will extend whenever you add new items to your list. So, for example, if you maintain information about your sales for the year and record data by the month, you can add new months to the list and the sales data for those months and the chart based on the data will expand to include this new data. This is something that wasn't possible in earlier versions of Excel unless you created some very complicated worksheet formulae.

To make a list in Excel 2003, open a new worksheet and type the column headings and one or two rows of data. Format these rows the way that you want the list to look - this formatting will later be extended as you add new rows to the list. Click in a cell inside the list area and choose Data, Lists, Create List. Confirm that the range specified is the area containing your list data, enable the My list has headings checkbox and click Ok.

The list will now have a blue border around it and the list row will display an asterisk - this is where you click to add a new row when you need to add a new item to your list. There is also a form attached to the list that you can use to enter data and you can see this by choosing List, Form from the special List toolbar [The toolbar is not visible, choose View, Toolbars, List].

The list has a special built-in total feature. To total the items on the list, click the Toggle Total Row button on the List toolbar. When you do this, the rightmost column of the list is summed. If you want a formula other than Sum, click the cell showing the Sum result and choose an alternate function from the dropdown list (which includes Average, Maximum, Minimum and Count). You can also click in any other cell in the total row and choose a calculation to be performed on that column of data.

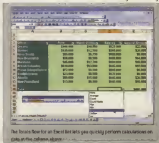
An Excel list has a filter automatically applied and you will see filter arrows to the left of each heading in the heading row. To filter the list, click the dropdown arrow for the column you are interested in and select the category to view. For example, you might want to see all the results for a particular state. Any totals in the total row automatically recalculate to

show a result for only those list items that are visible. To cancel the filter and return to viewing the entire list, click the dropdown arrow and choose All or choose Data, Filter, Show All.

One of the most useful features of lists is the ability to create self-updating charts. To make a chart based on data you have stored in a list, click somewhere inside the list and then click the Chart Wizard button on the List toolbar. You can now step through the process of creating the chart to your desired specifications just as you would create any new chart in Excel later, whenever you add a new item to your list, it will be automatically added to the chart, without you having to do anything at all to make this happen.

At times you may need to sort the data in your list to see it in some special order. To do this, choose List, Sort, choose the column to sort by and choose to sort in Ascending or Descending order and click Ok. When you do this, the list data is sorted, but the column data to the right or left of the list area won't be rearranged as a result. This is because the list is treated as a separate area for sorting purposes - this isn't the case when you filter the list however, and data is now to the right or left of the list may be hidden when you filter the list - they disappear when you make all the list data visible again.

By Helen Bradley



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DV or Not DV

Online videos have jerky pictures: Is that a technical or aesthetic problem?

Q Whenever I watch Internet videos or movie clips on my computer, the picture skips and stutters. Is there a way to correct these jerky pictures?

Hi, hi hi — could someone please open the door a little wider for me?¹¹² Web names like Allaround.com, Bonad.com, Stupidvideo.com, Stupidpics.com and Dumpalike.com, is there any wonder their jerky stuff online? When the perfectly-innocent question first appeared, a stream of only answers dogged my criminal index.

But as user-generated material continues to appear on the Web, we might anticipate a reconfiguring of technical- and aesthetic- standards. It's a double-edged sword, as the promise of socialized media networking comes face-to-face with emerging techniques and technologies.

The two main ways of playing video on a PC (pre-installed with an appropriate media player, such as QuickTime, Real or Windows among others) right now are streaming and downloading. Since the introduction of Flash MX and Flash Video Player, video can also be embedded within Flash movies and HTML pages (audio-only MP3 files can be delivered in the same way).

Normally, streaming media plays once it reaches across the Internet to your computer, which is nice if you are unsure if you want the content or not, as you can begin to watch it right away. It does mean that playback can be interrupted or become "jerky" due to Internet traffic jams, bottlenecks inside the PC and other technical or transmission issues that can interrupt smooth playback. Streaming files are not stored locally.

Downloading a media file means the clip is stored locally on your computer; usually you must wait for the full download before viewing. But because the file is downloaded, and now resides on your computer, you can search your browser caches or temporary Internet files to access the content again and again. If there are no copyright or rights management issues with the clip, that's fine and dandy. It's certainly an advantage if you want to watch the same clip over and over.

Of course, the size of the videos can also affect its playback performance, especially if the video file is too large for a connection to handle properly. Tips for reducing the size of an Internet video may seem superfluous if you're only watching short cell phone videos, but there can be good reason to consider one or more of the following:

- **Start with the best quality video possible**
(Poorly shot, poorly lit, noisy or shaky video — jerky, as it were — takes more resources to compress, deliver and playback well.)
- **Lower the frame rate.**
(Video is normally 30 frames per second; 25 frames or so can be a reasonable Internet option.)
- **Drop the frame.**
(Standard video is normally 640 x 480; 320 x 240 is a common compromise between size and space.)
- **Send the frame.**
(Many Web surfers enjoy high speed broadband connections, but dial-up is not extinct. Illustrates from less than 100 Kbps to over 5-Mbps can be encountered on the Web, so adjust your videos and your expectations accordingly.)

Regardless of the size, streaming audio or video needs small portions of the data to your PC, which are held in a buffer (the PC's temporary stash of incoming media). There can be a short waiting period before anything plays, and you may see the dreaded "buffering" message as the PC lines up the bits of data. Once the first chunk begins playing, all should go well and the movie stream plays to the end without interruption. But any connection problem or other hiccup will stop playback, and the buffering and line up of media chunks must begin again.

Freeing up internal PC resources by closing unused programs can help. So check the Preferences or Options set for your media player and connection speeds. Setting a connection speed somewhat slower than is actually available can help maintain smooth playback. In QuickTime player, for example, streaming preferences can be adjusted to cope with network congestion and improve playback. Increasing the size of available cache can help. In Windows, there's a video acceleration feature (found in the Video menu) that can be turned on or off as required. With Windows Media Player especially, it's important to have the latest compatible hardware (graphics cards, etc.) and software (Windows update, Direct X) for proper playback.

Progressive download is quite suitable for low-traffic situations, and the delivery of short videos. Streaming video gives creators more control over the viewing experience, and is most appropriate for getting video to large audiences. (For example, several hundred simultaneous viewers). Streaming also enables tracking and reporting of video viewing statistics.

For the creator, one potential drawback with streaming video is the requirement for special server software and media delivery applications, in addition to the Web server itself. For streaming Flash Video a dedicated server and software is required.

Videos on the Web (despite my open door silliness) has great potential, whether you are a viewer or a creator — today, most of us are both. Near time, we'll take more about uploading videos so as to eliminate unwanted jerky — uh, problems.

By Lee Rickwood

Lee Rickwood is a freelance writer and independent video producer. He operates Werd In A Box, an independent company providing editorial, media production and consulting services to individuals and companies across North America. He can be reached at leerickwood@worldinabox.com.





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The ultimate phone for music lovers

LG: First, a feature-rich music phone

Any phone that plays MP3s is hardly newsworthy these days, but when you hear what the newly launched "Fuel" phone can do, it'll be music to your ears.

This sleek, LG-flip phone from Bell Mobility is the first in Canada to feature a built-in wireless transmitter, which means you can beam your favourite songs to a nearby FM radio, such as when you're in the car.

That's right — instead of listening to music through a cell phone's external speaker and rather than wearing earbuds (which can be a safety hazard when behind the wheel), daily commuters or road-trippers can enjoy their MP3 collection through a decent stereo without the need for a pricey iPod and external FM transmitter.

Here's how it works: the "Fuel" — which combines "fun" and "music" — says LG (shame) — first requires you find a spot on the FM dial unoccupied by a radio station (and very late fees, if you can find it). Then, on the phone, while music is playing, you can select Music Transmitter from your list of options and press the up and down buttons to match the frequency of your radio's FM dial. You can then save this preset on your phone in one of 12 spots. It works fairly well — about as good as any other FM transmitter, such as the Griffin iRip. But it really does depend on the city you're in.

Music is stored on tiny MicroSD memory cards. A 64MB card is included with the phone (which translates to roughly 10 songs), but you can pick up a 2GB MicroSD card (about \$50 songs) for as little as \$100. Alternatively,

you can purchase music via Bell's wireless music store — the largest selection in Canada — which offers more than 750,000 songs from labels such as Universal, Sony/EMI, Warner and others.

You need not open the flip phone to play music; simply hold down the Play/Pause button on the front of the phone and you'll be able to launch music from internal memory or via the memory card. Without opening the handset, you can also select tracks, skip forward or back and adjust volume.

But what good is playing music on your cell phone if the battery life is poor? Not a problem with the Fuel, as it can last up to 3.2 hours for music playback.

Earbuds are included, but because the LG Fuel supports Bluetooth 2.0, you can even use wireless stereo headphones (something your iPod can't do). Some stereo headphones, such as the Plantronics Polar 2500 (\$200), have a tiny built-in microphone, so when the phone rings, you press a small button on the headphones to take the call and resume the music.

Other features of the post-white LG Fuel include four interchangeable colour displays (graphite, black, green and brown) to match your mood or clothes, streaming TV broadcasts, integrated 1.3 megapixel camera (with flash, zoom and camcorder), GPS functionality, and text, photo and video messaging.

by *an 11th-hour magazine* and *2007* — phone calls, too.

The LG Fuel is available for \$179.95 with a 3-year Bell Mobility plan, and can be ordered online at www.bell.ca/telecom.

By Marc Seligman

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So, how do you get music onto the phone?

You'll receive a 64MB MicroSD memory card bundled with the LG Fuel phone, which can store roughly 10 five-minute tunes (encoded at 128 kilobits per second).

Because prices have dropped considerably over the years, you should consider replacing that card with one that can store a lot more music. A 2GB MicroSD card, for example, which you should be able to pickup for under \$100, can store well over 500 songs — doubling the entry-level iPod nano.

And getting your music onto the phone is a simple process. You can do this in one of two ways. With the memory card inserted into the phone, you can attach the handset to your computer via its USB (Universal Serial Bus) cable and then drag and drop music onto the player in a program such as Windows Explorer. An even easier way is to pop the memory card out of the phone, fit it into the bundled adapter (which resembles a slightly larger SecureDigital card) and then insert it into your PC, or printer if it has a memory card slot that fits this type. Similar to option No. 1, you then simply drag and drop the music onto the player, upload and go. That's it.

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CES Report: Products Galore at CES

Doing CES 4-to-1 is a logistical proposition. There are simply too many evaluations, too many product comparisons and too much area to cover adequately (around 2,700 inhibitors spread over an area equal to 30 football fields, according to CES). But products are what they allow us to do about, and the good side to all those inhibitors is that it's hard not to come across them: a few interesting new products can be spotted sooner or later than you. These are just some of the costs that payoffs may pay.

Marketing Communication for Effect

This is an audio mixer with inputs for four audio sources such as microphones and instruments. Each channel has a three-band equalizer and pan and level controls. It records the mixed signal onto an iPod at CD quality (16 bit 44kHz). The unit can also act as an external USB sound card and will stream audio to or from a PC or Mac. It should be available mid-year, with an estimated price around \$250.

Discussion

Worcestershire-based Toric Inc. (Canada) Inc. (www.toriccan.com) has developed a relatively inexpensive underwater housing for digital cameras called Snapper HP, with an extra measure of protection called a Snapper Suit. The HP is a hard polycarbonate case designed to fit 35-millimetre (1 1/8 inch) film. It has a tempered optical glass window for the lens and 16 external buttons to control the various camera functions. Snapper Suits are flexible, when 600 is melted to fit a select number of digital point-and-shoot cameras from Canon, Nikon and Sony. When the camera is not in the HP housing, the Snapper Suit still provides some measure of weather proofing. The Snapper HP sells on the company's website for US \$349.



If you like your iPod synced but wish you didn't have to sit by your computer to tune them in, the Phoenix iPod Radio may be your cup of tea. Developed by a French company called Que One (www.que-one.biz), the Phoenix is a portable radio with tuner dial, volume knob and stereo speakers. But the gimmick it responds to are not AM or FM, but WiFi. Thus, if you have a WiFi access point at home (802.11 is or is not), you can pick up internet radio on the Phoenix anywhere you like (as long as the WiFi signal

The radio features include an alarm clock, eight preset buttons and a search mode. It's portable, powered by rechargeable batteries. The suggested retail price is US \$249.

Downloaded At: 11:52 11 September 2009

If you are craving that HD experience in your home movies, look for JVC's HD Everio GZ-460? some time around April. The company claims this is the first consumer camcorder to deliver full-HD resolution video — that's 1080i/60.

The optional CD-GO drive will be good for five hours of recording at full resolution. The HDV has many high-end features including three CCDs, a lens (1.8 f/stop), 10.5 zoom with optical image stabilization and mic input jack for external microphones. Pricing will be somewhere on the good side of \$2,000.

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Other companies have achieved terabyte storage by ganging up multiple drives into a single enclosure, but Hitachi Global Storage Technologies has announced the industry's first terabyte (TB) hard drive. The drive, called the Deskstar 7K1000, will be available within the next three months at a cost of around \$3,500, which translates into around 40 cents a gigabyte.

Headle also announced a CinemaDram version. Although it provided few details, it says the drive, also with one terabyte capacity, will be optimized for digital video recording applications such as hard-drive based personal video recorders. It says the terabyte drive will be able to store around 2500 hours of high-definition programming.

Received September 14, 2004; accepted November 10, 2004.

Musical displays are cool, and with the Wear-VR20 from Packerware, MP-based Kult ([www.kult.com](#)), they are also now relatively inexpensive. The VR20 is light and quite comfortable, with an adjustable visor and removable motion exchangers remove along the curved top arm. Cult says the VR20



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glasses give roughly the same visual experience as watching a 44-inch TV screen from a distance of three meters. It works with most portable video sources such as video iPods and other portable multimedia players, portable DVD players, cell phones and game systems. Power comes from a built-in rechargeable battery good for about five hours of use per charge. Each eyeglass can be focused individually so that eyeglass wearers can tune the display properly. The display glasses will also show 3D content using the company's iDuty3D technology. The iWear AR330 is available online for US \$240.00.

Clear stereo earbuds completely wireless

A lot of companies were showing Bluetooth stereo headsets, but Bluetooth only half delivers on the wireless promise since they still need a wired link between the left and right earbuds. Kier, a California company with R&D in Ottawa, went back to the drawing board and developed a fully wireless earphone technology that uses the 2.4 GHz radio frequency, not Bluetooth. Kier claims its technology has lower noise levels for better audio quality and uses less than the power of Bluetooth, so earphones can be made smaller because the battery can be smaller. Using 2.4GHz also allowed the company to develop a completely wireless system, not just eliminating the wire from player to headset, but also the physical connection between left and right earphones.

BGA is the first company to incorporate the technology and introduced its JetStream wireless MP3 player at the show.

Call me Blue, Super Multi Blue

Forget the format wars, LG bridges the seeming battle between Blu-ray and HD DVD by introducing an internal PC drive that does both – sort of. Its GDR-H2CM, more affectionately known as the Super Multi Blue Blu-ray Disc Rewriter and HD DVD-ROM Drive will read both next-generation optical formats (although it will only record the Blu-ray variety).

On dual-layer Blu-ray recordable (BD-R) and rewritable (BD-RE) media, the

drive will record up to 50 GB of data, which LG says is equal to about 4.5 hours of high-definition video or 22 hours of standard video.

Super Multi Blue technology will also work inside into a dual-format player, due to be released later this year, which will give consumers the ability to play back both Blu-ray and HD DVD content discs on a single player.

New GPS units from Mio

Mio technology made something of a name for itself in 2004 with some very cool GPS units under the Digifinder brand name that proved to be very popular. Mio was previewing two new Digifinder models that will show up by mid-year: the C520 and C260.

The C520 is a widescreen model (4.3-inch display) designed primarily for in-car use. It will offer a split-screen mode so that you can have the map and route or address information on the screen at the same time. The unit will also be Bluetooth enabled, so you can use it with Bluetooth cell phones. The greater size C520 has a 2.5-inch touch display.

The GPS Phone

Phoria Science & Applications, Inc. (www.phoragps.com) had introduced its first GPS smartphone, called the GPS-600. The quad-band GSM unit uses Microsoft Windows Mobile 5.0 operating system, supports EDGE when available and also includes Wi-Fi and Bluetooth. It comes with a two megapixel camera that also records video and an iPhoto/Windows Mobile provides a suite of Office applications, and Windows Media Player 10 handles audio and video entertainment playback.

LaCie turns Blu-ray

Among content developers, video artists and photographers, LaCie is a preferred brand because its products seem to push beyond the ordinary. Given this, the company's claim to be first to market an external Blu-ray burner won't be surprising. The LaCie d2 Blu-ray Drive handles PS/2 or USB 2.0 (reversible) and HD-DL (reversible) media and is backward compatible with DVD ±RW/DL and CD ±RW media. Consumers who want to be first in line for this drive will have a price to pay, US \$1,150.

Tune

Not here, not now. Microsoft's much-hyped media player has run into similar content supply issues that kept Apple's iTunes music service out of Canada long after it was available in the US. A Microsoft Canada spokesman said Tune would become available in Canada as soon as these content issues have been solved.

By David Tanaka



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CES Report: The TVs of CES

Innovative, intelligent, immense

CES is the best place on earth to learn about and experience all of the many television markets currently manufacturing.

The biggest displays are always showstoppers. Most of the major players roll out feebly large prototype sets that evoke gaping-Pythagoras responses from attendees. In 2006, it was Panasonic's 302-inch plasma—which was recently made available in Canada (for a mere \$860,000)—that grabbed the most headlines. This year, the world's largest television (oh, yes, it's Opsona) and its 320-inch 1080p DLP rear projection set. But main buzz was generated by Sharp's slimmer and sleeker LCD-inch LCD, which will apparently be available by the holidays. [A Sharp representative told me that if I could find a stocking big enough, had stuff "one inside for me. I've already started sewing.]

But Sharp's pavilion had more than monstrous monitors; it was an oasis of innovation. In a secluded room at the back of the exhibit was a red millimeter panel. To put that number in perspective, the screen has more than four times the resolution of today's high-end 1080p sets.

The room next door played host to a stunning 65-inch 1,920,000:1 contrast ratio LCD. The blacks were so deep as to get plasma to shame; dulcet tones of the screen generated no-visible light as all.

But these technologies are so prohibitively expensive that they may never filter down to the consumer.

The most important advancement in LCD technology that will actually be appearing in 2007 models is an increase in display response time from

60Hz to 120Hz. A variety of demonstrations showed that this jump in frequency delivers a dramatic improvement in the rendering of fast-moving images. Manufacturers of the new 120Hz displays include Sony, Sharp, Samsung and Panasonic.

Kiss your cables goodbye

Rear panel covers have allowed interior designers to hide ugly power wires and cables in the rooms they chose rather than living their lives in chaos. However, designers still face the problem of trying to hide the unsightly cable that connects computers to sets. HP's MediaSense LCDs offer an excellent solution: the wireless PC connectivity, but if you want to connect a laptop, game console, video camera or any other device, you'll have to work with wires sticking out from the rear or side of the television.

At CES, Philips and Samsung each unveiled new ways to combat the cable problem.

Samsung showed a prototype "wireless plasma" television. It comes with what amounts to a switchbox (that can be squashed far away from the set), to which users connect all of their components. The box then wirelessly transmits audio and video signals to a receiver integrated within the television. No need get on availability.

Philips' solution, called Wireless HDMI, was designed solely for HDMI-enabled equipment. Just plug your device into the transmitter box and push the small receiver to the back of your television. HD-quality audio and video, send wires. Wireless is stores in the summer for about US \$400.



Speaking of Panasonic, the big question before the show was whether or not this leading manufacturer of plasma televisions would be able to produce a cost-effective 1080p display (current 1080p plasmas only come in massive sizes and have five-digit price tags).

The answer was not really. Panasonic did reveal a couple of smaller 1080p plasmas, including an impressive 32-inch model, but price wasn't discussed, leading to speculation that the Japanese company won't be able to bring it to market in a price range that would be competitive with the many (slightly smaller) 1080p LCDs that are now selling for as little as \$2,500.

Panasonic also showed a prototype 42-inch 1080p plasma, but apparently it will require a completely new—and costly—manufacturing process, making it an unlikely candidate for mass consumption, at least in the near future.

While OEMs were busy trying to innovate on the hardware front, value-added plasma and LCD reseller HP drew attention for its reworked MediaSmart LCD televisions.

Introduced at last year's show, MediaSmart sets can exclusively stream music, video and photo files located on any PC connected to your home network. This year's lineup, led by a beautiful 47-inch 1080p model, has a much-improved user interface. Plus, rumours are rampant that MediaSmart sets may have the ability to act as Vista Media Center Extenders once released.

So there was no dearth of exciting new displays at CES. Now all we have to do is bide our time as we wait for them to go into production and make their way to Canadian shores.

By Chad Sapich



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CES Report:

The big and small of personal computing



HP Mediaset Server

But since consumer electronics collided with digital technology, the personal computer has taken an essential place in the exhibition halls of the Consumer Electronics Show. PC luminaries like Michael Dell and Bill Gates are regular keynote speakers at the trade show, and the likes of Intel and Microsoft camp up beside Sony and Samsung. The old PC dazzle is still there – faster performance, smaller form factors, more capacity in all subsystems etc. – but now it's about how all that technology fits into your digital lifestyle.

Computing gets smaller

On the small end of things is the QOO Model 62, billed as the world's smallest Windows Vista computer. It's the UMPC (or Ultra Mobile PC) that Bill Gates highlighted during his CES keynote address. Holding it, you'd be inclined to think it was a Windows CE handheld device, but this one includes the goods to run a full version of Windows XP (and it's Vista-ready). Both the processor and graphics chip are from VIA, a chip maker that abandoned the CPU speed cycles race a few years ago and turned to other important factors like battery life, noise reduction and heat performance.

The premium model of the QOO uses VIA's C7M VPU (or ultra low voltage) processor running at 1.5 GHz, and comes with 1 GB of RAM and a 50 GB hard drive. The five-inch 800 x 480 pixel display [supports up to 1280 x 800 on a bigger monitor] folds forward to expose a small qwerty keyboard and a pointing device called a track stick. The machine includes an iHDH port and VIA's Ethernet adapter, a USB port and audio line output port. It also handles

WiFi (a, b, g) and Bluetooth 2.0. An optional docking station includes a DVD burner in the base and more ports to allow you to connect a full-size monitor and keyboard. Weighing in at around half a kilo [1 lb], Model 62 runs for about three hours on the standard Li-ion battery, but an optional battery gives twice that. Expect to pay instead \$2,000 for the premium model outfitted with a few accessories.

VIA was also part of the popular Launch & Learn event and was showcasing a number of UMPCs developed by its manufacturing partners. The chipmaker has been promoting things like "quiet" computing and energy efficiency for a few years, and in a sense VIA's strategy has been vindicated because the PC biz is increasingly embracing these green concepts.

Using a full-blown Windows computer in a small form factor sports up a number of application possibilities, and one of the nearest I saw was the G4 from Korean tech company Infi9. The G4 takes whatever audio can audio to an entirely new level. It's designed to drop into the audio system bay and integrates nicely into the dashboard with an 800 x 480 pixel 8.5-inch touch screen display forming the main interface. Behind the screen is a PC powered by a 1.5 GHz VIA C7 processor running Windows XP. It has a 40 GB hard drive, a DVD player, GPS unit, Wi-Fi tuner and a four-channel audio amplifier [you can also get a 5.1 channel pre-amp model]. There are also three USB ports, one on the front and two on the back.

Infi9 says the unit supports dual displays, so that the driver can have the in-dash panel set to a GPS mapping programme while the rear seat passengers watch a DVD movie. It can be integrated with a rear view camera and tied into your car's existing steering wheel radio controls. At this point, you'll have to go to Korea to get one where it sells for around \$2,000.

The cores and beyond

At the big end of things, chip giant Intel announced three new quad-core processors at the show: two in its Atom server-oriented CPU family and the first to bear the name Core2Quad. Intel set the price of the Core2Quad at US \$651 in quantities of 1000 to manufacturers, so you can expect segments built around this processor will be a lined at the high-end enthusiast market and command a premium price.

And speaking of that segment, Calgary-based iRoobot, which was acquired by HP last year, found a comfortable corner in the HP booth to show off its extreme gaming rig along with an experimental wraparound display system. It also announced a new gaming laptop, the Epyc HW 201. The numerical designation refers no doubt to the 20.1-inch screen. Other performance pluses include an AMD Turion X2 dual core processor plus support for 8GB dual in-line graphics cards in a laptop? Why not. And, of course, you can order the \$4,000 unit in a range of colours.

AMD announced its AMD Live! notebook platform design based around the Turion 64 X2 dual-core mobile CPU. This brings to mobile computing the Live! initiative AMD began last year on the desktop. Live! is a set of technologies that allows the PC to better fit into a home entertainment environment. Based around AMD's Athlon 64 X2 dual-core processors and Windows XP Media Center Edition or Vista Premium and Ultimate, it includes usability upgrades like Cool'n'Quiet (which reduces PC noise) and rapid on/off (for more appliance-like start-up and shut-down of the PC). It supports up to 16 audio, high-end graphics TV tuners and remote control users.

QOO Model 62



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There were also a number of media-related software applications and utilities, such as "On Demand," which helps stream TV and audio to a media player; "Network Magic," which is a home network management utility; "Media Vault," which performs automatic backups to an online server; and "Logitech," which allows users to securely access their home computer from a remote location.

A number of tech companies have signed up with the Last.fm program, including most of the motherboard makers, and other peripheral and software companies like Creative, Logitech, AverMedia, D-Link and Western Digital.

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With the general launch of Windows Vista set for the end of January, much of Microsoft's week was devoted to this re-tro-gen operating system. The computers in the media room were running Vista too, so this provided many writers with their first taste of doing real work under the OS.

A potentially more interesting OS announcement came during Microsoft chairman Bill Gates' keynote address: Windows Home Server, which will become available later this year. The name says it all: it's server software for the home. In Microsoft's words, it's a nice example of hardware being developed to run the software — HP's WebServer Server that is an AMD Sempron-powered server based on AMD's Live! Home Media Server platform design. In ketchup drive bays. Populated with PDSB drives, you could have three terabytes of storage without more than the box.

The server will support up to 30 user accounts and can be used with Windows Mac or Linux clients.

Users connected to the server each have a Control Center interface on their individual computers that allows them to navigate the folders on the server or other connected PCs or other resources; for example, you could set up network printers with the MediaDirect Server. The administrator can set privileges at the folder level, allowing full read/write, read-only or no access. Mobile users with notebooks supporting remote access (Windows XP SP2, HCE 2000 or Vista Ultimate) will also be able to remotely access their home computers through the server, or backup/transfer documents, digital photos, etc. on the server.

A common safety net with enterprise servers — automatic backup of data on PCs — is also a feature of the Home Server software, including full operation of a hard drive image should a PC hard drive fail. The MediaSmart Server will also stream media to home entertainment players through a digital media extender.

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CES Report: High Definition Formats Converge

Over the course of 2004, the release of Blu-ray and HD DVD, two competing high-definition formats, was met with little fanfare. While videophiles and movie buffs have praised the advantages of Blu-ray and HD DVD over standard definition DVDs, the mainstream consumer has been very hesitant to adopt either format because of its hefty initial investment and the fact that neither format was available

Fast-forward to CES 2009, where many of the major H-D format announcements dealt directly with alleviating the problems associated with two different formats. From a consumer perspective, the new technologies effectively eliminate the burden of having to choose one format or the other.

Revised: 14 Dec 2010

The past summer, a patent was filed by Pioneer Corp., in which they proposed a combination disc that housed both Blu-ray and HD DVD movie data. While the original patent suggested that Blu-ray and HD DVD information could be burned on the different layers of the same side of a disc (since Blu-ray is burned 0.1mm deep, while HD DVD data goes on a layer 0.6mm deep), what was shown at CES simply had HD DVD data on one side and a Blu-ray on the other. While the aluminum HD DVD (HDL)-based hybrids (which HD DVD is on one side and regular DVD on the other), it allows for both HD formats to use multiple layers, which wouldn't have been the case if Warner decided to house both pieces of information on the same side.

During CES, Warner announced that the hybrid discs, named Dual HD, would be available in the latter half of 2007. Currently, Warner is in talks with the other major movie studios in the hopes that, by removing the need for exclusively studios will no longer have to be Blu-ray or HD DVD only. For movie studios, it's equivalent to having you take and eating it too (products are sold, so it's both markets). While consumers will benefit from not having to worry about which type of player they have.

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To further blur the line between HD-DVD and Blu-ray, Toshiba announced that it has created triple-layer HD-DVDs, whose storage capacity of 51 gigabytes surpasses that of even dual-layer Blu-ray discs (50GB). Not only was it able to add an extra layer, but it also managed to cram in two more gigabytes per layer, going from 15 GB to 17 GB. Because the discs use the same production procedure as single and dual-layer HD-DVD discs, the cost of adding the additional layer will be negligible.

While this is an interesting arrangement, Rife suggested that it could create HD DVDs and Blu-ray discs with as many as two layers. The problem with these multi-layer discs, however, is whether or not current generation HD DVD and Blu-ray players can read the additional data. If they can't, it may not be so big of a deal from a HD movie disc perspective. Toshiba expects to have the format approved by the DVD format standards in 2006, meaning we could possibly see multi-layer HD DVDs in the end of the year.

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Arguing the case in CD, LSI multi-format HD players and burners were a huge hit at the convention. The Super Match SH-100 is the world's first Blu-ray and HD DVD competitive player offering the ability to playback Blu-ray, HD DVD and standard DVD discs. The SH-100 is the functional opposite to Memorex' Dual HD hybrid disc, in that by supporting both formats, it doesn't matter which kind of HD disc you get. After making this deal a true win-win, Memorex's solution is doesn't matter what HD format the movie studios decide to support as the SH-100 can play both. Furthermore, consumers can simply purchase the cheapest version of discs that are released on both formats. LSI said the SH-100 would be on store shelves the first week of February.

Rounding out their Super Hard Blue product line, LG also showed off the DVD-HD-D, a combo drive that can play both HD DVD and Blu-Ray discs, as well as record dual layer Blu-Ray discs at up to 4x. For the sake of compatibility, the DVD-HD-D can also burn DVDs and CDs.

The launch price for both the SP-100 Super Multi Blue Player and DVD-R 120 burner will be a whopping US \$1,191, but the prices will undoubtedly fall as other manufacturers release similar products throughout the year.

THEORY OF THE MIND

If any of these new developments pertain, we could see an end to the format wars before they've even really begun. Although unconventional, this type of convergence is further proof that the industry's third parties (non-computer hardware manufacturers and especially the customers) really don't want the market segregated into two formats. Because of this, these hybrid, dual-format products should eventually achieve a decent amount of success. It will be interesting to see if these camps divide and conquer the marketplace (they deserve one of the next legos) and move them down (or up) toward the bench-format camp co-existence with the so-called old-school models.

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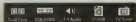
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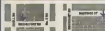
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PS3 vs. Wii vs. Xbox 360

So, which video game system is for you?

It's never been a harder time to be a video gamer – but it's also never been so confusing.

Not one, but two new video game systems recently debuted – the Sony PlayStation 3 and the Nintendo Wii – joining the year-old, critically-lauded Microsoft Xbox 360.

Deciding which video game console is for you can be a tough decision – weighing in factors such as price, game line-up, target age group, controller type, internet support and multimedia features – but the following

should help paint a clearer picture on what to expect between the three gaming machines.

Thanks ready? Here we go.

Sony PlayStation 3

The PlayStation 3 (PS3) offers the most advanced hardware out of the new consoles, but you'll have to pay for this luxury – the machine costs \$499 (with 20GB hard drive) or \$499 (with 60GB hard drive, built-in Wi-Fi

connectivity and memory card reader). For serious gamers, though, this means near-photorealistic graphics, as you'll see with launch titles such as Sony's sci-fi shooter, *Resistance: Fall of Man*.

To get the most out of this sleek, sleek machine's technical prowess, however, you'll need a HDMI and HDMI audio-video cable (not included) to connect the PS3 to your television – especially if you want to watch Blu-ray movies on your PS3, which is one of its selling features (Wii DVD's *Talladega Nights* is included).

At first glance, the wireless PS3 controller resembles its PS2 predecessor, but it's lighter and offers built-in motion-sensing functionality (though it's not fully utilized in the first batch of games). Curiously missing, however, is the rumble feature found in the PS2 controller. Turn the PS3 on and you'll hear a symphony blaring up just before the "press media bar" appears, which lets players navigate between games, music, videos, photos and so on (similar to the PlayStation Portable interface).

The PS3 is also backward-compatible, so it'll play both PS1 and PS2 games, plus it also reads CDs and DVDs.

Nintendo Wii

The relatively affordable Nintendo Wii (\$249) is much smaller and lighter than the PS3, but this time, white console offers a few surprising twists. One is how you control the games. Rather than a conventional joystick, the Wii controller resembles a DVD remote with integrated motion-sensors, so you can slash the controller like a sword in *The Legend of Zelda: Twilight Princess* and the related action is seen onscreen. Or swing your arm forward and back to volley a tennis ball in *Wii Sports* (a suite of sports games you get with the Wii console).

A second "nunchuck" controller (also included) can be tethered to the main controller for added functionality. Controlling some games, such



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is Jaiel, takes some getting used to, but will prove intuitive after a few levels.

Be aware, though, in order for the motion sensor to measure 3-D space, you must stick a small black sensor bar on (or just beneath) your television, which sends an infrared signal to the controller to confirm location.

Another caveat about the Wi system: don't expect high-resolution graphics as you will with the PS3 or Xbox 360. Nintendo's efforts went into reworking how you play the game rather than how the games look. In fact, the laugh takes its way look much better than Nintendo GameCube games (the Wi will play those too).

While some games are for older players (such as Ubisoft's "Teen"-rated *Red Steel*), the Wi is the best pick for younger gamers. Players will also be able to download hundreds of past Nintendo classics, such as *Super Mario Bros.*, for a few bucks apiece or watch free streaming online content via Wi Channels.

Xbox 360

While all the attention may be on the PS3 and Wi this past holiday season, don't discount the Microsoft Xbox 360 (starts at \$299).

After all, the game has hundreds of quality titles, such as *Call of War*, *Ninja Nitro*, *The Elder Scrolls IV: Oblivion* and

Dead Rising, not to mention impressive 2007 games on the horizon, such as *Metal Ditch*, *Halo 3* and *BioShock*.

Plus, gamers who enjoy playing on the net won't find a more comprehensive online network than Xbox Live (50¢ a year), where players



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First Glance

Dual digital heads better than one

Montreal-based Matrox Graphics Inc. (www.matrox.com) has brought us DualHead2Go into the digital age by introducing the Digital Edition of the product. DualHead2Go is an external box with one display input and two display output ports. It connects to a compatible graphics card output port where Windows treats it like a additional monitor. The DualHead2Go unit divides this widescreen video output into left and right portions and sends each half to its separate monitor outputs. Thus, Windows might send one 1640x1200 pixel signal to the DualHead2Go, while it, in turn, sends two 1920x1200 signals to two monitors.

The DualHead2Go Digital Edition brings the obvious advantage over the analogue version of being able to connect two digital displays (it also supports analog displays). Matrox says it has also enhanced the Matrox

PowerDesk SE2 software to support more resolutions, plus widescreen and standard aspect ratios.

The product is compatible with Windows XP, Vista and Mac OS X. It will be available in March. Estimated price is approximately \$300.



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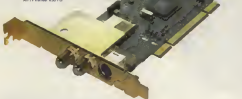
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antenna) and it has a great software package called Catalyst Media Center that delivers full PVR and DVD playback and recording functionality along with a robust set of video augmentation technologies.

Installing a tuner card is relatively simple and takes only a few minutes, but if you don't want to pry open your case, then an external tuner might be in order. Hauppauge's \$200 WinTV-PVR USB2 is a small box that connects to your PC via a USB cable. It taps out all 125 channels and looks over the air-HD TV reception capabilities, but it comes with an IR remote that helps simulate the traditional television viewing experience.

The second piece of hardware you need to worry about is a graphics card. If your existing graphics board was manufactured in the last few years, it's probably powerful enough to accommodate the modest requirements of processing television video. The key isn't so much in specs like graphics processor speed or dedicated video memory, but rather TV output capability. In other words, you need to be sure that your card has at least one video output that jives with the television to which you wish to connect your PC.

The chances of your fancy new flat-panel having a standard PC (VGA) input aren't great, which means your graphics card should offer at the very least a composite (yellow) or S-video (round with pins) output that can be used to send a standards-definition video signal to your television. If you want a high-

definition signal, your graphics card will need an HD jack, typically HDMI or DVI.

But don't get too hung up on making sure your video card supports HD. Some tuner cards might allow you to receive over-the-air HD TV signals from major networks, but there aren't any tuner cards that support HD TV signals received from set-top boxes. In other words, you can't funnel an HD signal originating from your cable provider through a PC.

At least, not in Canada. In the U.S., TV tuner cards that support the American CableCard standard allow PCs to act as a hub for HD television signals. Sadly, the CableCard standard isn't used in Canada. When will we be able to

route cable HD TV signals through our PCs (via a CableCard or some other technology)? That's up to Canadian broadcasters, and it looks like we might still be years away.

Consequently, an HD-capable graphics card will be useful only if you plan to receive and view live-to-air HD TV signals using a high-end TV tuner card (or if you plan to use your PC in conjunction with any other form of high-definition content, such as downloaded HD videos or Blu-ray or HD DVD movies).

If you decide you need or want an HD video card, a good option that won't break the bank is the \$250 Radeon HD X1300 Pro. It sports an S-Video cable for standard definition output and a DVI jack for HD video. [If your television doesn't have a DVI input, you can buy a DVI to HDMI dongle for just a few more bucks.]

And that's it. Not only have you fashioned a powerful PVR for your living room, you've also saved one more PC from the junk heap. Congratulations and enjoy.

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CES Report: Domo Arigato, Mr. Roboto

Robots walk onstage at CES

We have to admit to being robot fans - who can resist sarcasm-been-guzzling robots, after all? But until recently, it seemed like these weren't any "real" robots available to the average consumer. If this year's show is any indication, that's about to change.

Honda ASIMO

Okay, this one isn't for the average consumer - yet - but nonetheless arguably the most impressive humanoid robot on the planet. One of the demons we mentioned to have missed was the ASIMO, which finally made its North American debut this year at the Honda booth. ASIMO is Honda's child-size humanoid robot. ASIMO stands for Advanced Step in Innovative Mobility, which has been under development for more than two decades. ASIMO's predecessor, the P2 - the world's first bipedal robot - was introduced in 1996 and the first ASIMO followed in 2000. The current "new" ASIMO was introduced in 2003.

It weighs 54 kg (120 lb) and stands 120 cm tall (4 ft 3 in). It walks at 2.7 km/hr (about 1.6 mph) but can also run at up to 5 km/hr or 3.1 mph. According to Honda, the ASIMO was created with child-like stature because that "allows it to look directly at an adult sitting in a chair or sitting up on a bed for easy and natural communication."

The robot has sensors that help understand not only where it is, but what types of objects and terrain are around it, allowing it to interact with the

environment, walk up and down stairs and even to run straight lines or along curves.

We watched some of the videos that Honda included on the media CD and it was hard not to think, "Get outta here!" That's gotta be a person in a robot costume!" because the motions were convincingly human-like. In one clip, the robot walks up to a couple seated at a table, serves them a tray of drinks, then backs up a few paces and politely bows. In another, it's seen pushing a trolley cart, looking left or right before heading off in that direction. If you could be fooled, you'll find videos of the ASIMO doing it all.

Therapy Robots

Robots in the service of humans was a common theme with some of the vendors set up in the robotics area at the show. Research on the use of robot pets as a therapeutic tool has been going on for more than a decade in Japan and Europe. Living pets have known therapeutic benefits in improving the well-being of some patients, but come with their own set of problems, such as allergies, some burdens for their care and sanitation issues. Pet-imitating robots don't have those problems.

One of the therapy robots in display was of a white medical robot, which looks up, looks to the body thus way and that, and performs other endearing seal-like motions. This was developed by The Intelligent Systems Research Institute (ISRI) of the National Institute of Advanced Industrial Science and Technology (AIST) in Japan, starting in 2003. PARO is now in its eighth



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generation of development. ISAAC2 says it chose to mimic a bee because few people have much direct contact with them, so there would be less of a credibility gap between the actions of a robot and a real bee – a significant problem to overcome had it tried to mimic the behaviour of a dog or cat. FIMO was awarded a Guinness World Record certificate for "the most therapeutic robot" in 2002.

Not your father's Meccano set

Meccano, best known for its do-it-yourself toys made out of various mechanical parts, has introduced *Spyke*, a do-it-yourself robot with a built-in camera and Wi-Fi that allows you to spy on your pet, roommate or significant other from anywhere you are in the world – all you need is an Internet connection. *Spyke* is expected in September, at a cost of US \$299.

WowWee

The RoboSapien was pretty popular, but WowWee isn't stopping there. This year should see the release of a ton of new robots. In spring, look for the remote-controlled *Flightrix Dragonfly* (US \$46), which allows outdoor flight even in tight spaces. Later in the year, the company will release the *RoboBee* (US \$299), which surprisingly features more natural conversational skills than our Neanderthal pal RoboSapien. And for those who just can't get enough of the lung, there will also be a robotic Elvis (US \$348), modeled after the '68 Comeback Special Elvis, complete with more natural facial design and motion than you'll see in WowWee's other robotic toys.



The new computer club

In speaking with some of the exhibitors in the robotics area, we drew an interesting parallel between the state of robotics today and the state of personal computer technology in the late 1970s and early 1980s. During that stage of computers, computer clubs were popping up all over the place as computer technology made its journey from the labs into the basement of tech hobbyists. Now, of course, computers are a permanent feature of daily life. We're witnessing the same process today with robotics: the computer clubs of yesterday are the robot clubs of today.

It's a sure sign that the age of androids is dawning. Maybe now is the time to start worrying about the robot revolution and to stock up on canned goods for our robot-proof bunkers.

By Sean Carruthers and David Tanaka

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Defining Definition

Reception Realities in the Home Theatre

How many of you bought or received a new high definition television recently? According to industry statistics and retail reports, a lot. Millions of HDTV units were sold during the North American gift giving season just past.

Congrats, you're on the way to a bigger, better television viewing experience - but you're not there yet. While it's true that in Canada more than one in 10 households now own an HDTV set, only 300,000 or so are subscribing to HD services.

What many folks don't seem to understand - or what salespeople fail to explain - is that you need more than a HD-set, HD flat-panel display or projector system to watch HDTV. You'll also need a compatible set-top box, along with the appropriate subscription services from a cable or satellite provider. You can receive HD for free by picking up any available over-the-air signals, but you'll need an HD receiver, antenna and dish line of sight.

Once you get the right equipment, it must be connected in the right way. Proper cabling is important, but be aware that incoming video signals (from a cable or satellite provider, a DVD or camcorder) should be matched to the display's native format (the primary resolution that the screen supports). The various elements (TV set, set-top box, provided programming) should be "in sync" to get the best possible picture.

It's confusing, for sure, and it's probably one reason why consumers should not be in charge of anything. There are still official - but different - definitions of DTV (digital television). So are described as HDTV (the other

is SDTV, or standard definition). Each of the 35 broadcast formats has a specific line count (480, 720 or 1080) of the active horizontal scan lines used to create a TV picture. The latter two are collective high definition due to their greater number.

The type of scan line format is key differentiator. References to "i" for progressive or "t" for interlaced describe the way each line is "written" onto the screen. Interlaced as the way TV began, individual lines of picture information are written one by one, all the odd-numbers first, then the even numbers. The entire process goes by very quickly (1 LBD of a second each for odds and for evens), but artifacts can still be seen even on the best of sets.

Progressive means an entire picture is created sequentially, with all scan lines laid down in order. So, where an interlaced TV signal stitches together half frames into a full image, progressive signals display a full image every time. Progressive scan picture quality is more film-like, with more fine detail and less flicker.

So, even if you have a compatible HDTV display, set-top box and subscription service, it can be just as important to match TV formats and native resolution parameters to get the best possible picture.

While it's true that most HDTV sets come equipped with conversion circuitry, it's also true that many manufacturers use lesser chips to do the job. With poor conversion, you might see picture problems like distortion or blockiness; colour shifting or cycling, and ringing or halftone-like effects.

There are many steps involved in the proper conversion of a video signal, with complicated technical processes and mathematical algorithms used to correct important image issues like colour, chroma, deinterlacing, scaling, line buffering and temporal or spatial distortion. A good converter uses fast processors and intelligent algorithms to detect and compensate for motion, scene transitions, foreground and background objects. It must discriminate between necessary picture elements and unwanted noise, and add detail without interference.

By the way, among the many manufacturers of good video conversion tools (Threeda, Terence, Avera and Crystalis among them), two of the best - Canham and Miranda - are Canadian companies.

Research into how humans perceive detail and visual elements underpins much conversion technology. Findings show a lot of equal or picture data is redundant, based on human sensory abilities. Conversion, compression and coding techniques like MPEG show away a lot of picture information due to our perceptual shortcomings.

Psychology aside, the proper set-up of an HDTV viewing environment is still a controversial issue. To get it right, a new service sector is springing up - TV calibrationists. They are knowledgeable in HD formats, skilled in equipment installation and set-up and experienced with the many home theatre variables. They will need to be.

In case you didn't know, the Federal Communications Commission (FCC) in the US says that by April 7, 2009, analog transmission will cease. DTV will go dark. All TV will be digital.

There is no such date set in Canada, but about the same time, Canadian consumers will have little option but to get a digital set-top box or tune in some kind to go with their HDTV sets. Since that's done, get ready for EDTV - an even higher definition format that promises some 360 lines, not just 1080!

By Lee Rickwood



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Rainbow Six Vegas for PC

PC port adds little to Xbox shooter

Publisher: Ubisoft **Developer:** Ubisoft
ESRB: Mature **Rating:** 3.5 out of 5

Platform: Windows PC (Running on a Windows XP box with a 3.0 GHz Intel Dual Core processor, 2GB of Dual Channel DDR RAM running at 800MHz, and a GeForce 6800 GT 5600 XT graphics card, displayed at 1024x768 on a 24-inch LCD)

First-person shooters, once purely the domain of PC gaming, now seem to reside primarily in the realm of consoles. The latest game in the esteemed Call of Duty franchise—a series born on the PC platform—didn't even make it to Windows; the developers focused instead on bringing it to the Wii, Xbox 360 and PlayStation3. The same goes for far Cry, all of the requests to the much-lauded PC original have been developed solely for Sony, Nintendo and Microsoft's living room boxes.

Thankfully, Ubisoft designed to release its newest Rainbow Six game—a visually spectacular affair set in Sin City that sees players hunting hundreds of terrorists amid swarming zombies—for PC. However, after working my way through both the Xbox 360 and PS3 versions, it seems obvious that the Windows edition was simply an afterthought.

The PC version of Rainbow Six Vegas is essentially a port, rather adding not subtracting any content from the Xbox 360 edition. Played on Microsoft's console, it comes off as a challenging, highly strategic shooter, thanks partially to the general dearth of serious tactical shooter games available for consoles and partly to the fact that it represents about as intense an experience as an average shooter (excluding console player is interested in).

Played on a PC—a platform known for appealing to hardcore players typically interested in a higher level of game complexity—the tactics feel a tad more involved, the game play a little sharper. Fans of earlier games in the franchise will likely miss the extensive pre-mission planning, team member macro-management and unforgiving realistic difficulty levels—not to mention the power of a keyboard and mouse control scheme (Vegas is playable using standard PC input devices, but it was obviously designed for—and is best played with—a game pad).

That's not to say that Vegas is a mindless fill-anything-that-moves play. If you rush in guns-a-blasting, you'll cut down in seconds by the game's impressively clever computer-controlled enemies. You and your team need to play it safe, taking shots from cover and using stealth and clear tactics when possible. Plus, you'll have the option of sweeping and clearing most areas on your own terms by using fast ropes to slide into rooms, employing grappling lines to scale walls and tossing smoke and flash grenades to gain an advantage in firefights.

If you play the game with your feet locked up on the arm of a couch and a floppy leverage resting between your thighs—as I did while playing the Xbox 360 version—then Vegas' level of tactical complexity seems spot on. However, play the game in a PC general position—namely, sitting on the edge of a desk chair and intently leaning forward towards a monitor—and activities like climbing and descending ropes start to feel more like candy coating these strategically significant combat options. It's fun, but the novelty soon wears off.

The lack of more sophisticated play in the PC version was disappointing, but my greatest dissatisfaction came from my online experience. The multiplayer game play is pretty much identical to the Xbox 360 version, which is great since the game is a blast on Xbox Live.

Unfortunately, I kept getting locked from games, lobbies and sometimes even the game search screen. Assuming other players run into similar glitches, it seems online play for the PC edition of Vegas is doomed.

Rage aside, Rainbow Six Vegas for PC is every bit as good a game as its console-based cousin. The problem is that PC players expect their games to be designed to suit their specific tastes, and Vegas is simply a console game in Windows clothing.

The industry's collective decision to focus its efforts on developing expensive shooters for the much larger console market represents a smart business move, but that doesn't keep PC gamers from feeling the sting of what essentially amounts to being dumped for a prettier date. For better or worse, the glory days of the PC shooter seem to be finally drawing to a close.

By Chad Saville



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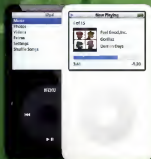
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